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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Kyungtae Han

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02/16/2006

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EXAMINER

KIM, KEVIN

ART UNIT

PAPER NUMBER

2638

DATE MAILED: 02/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/963,297

Applicant(s)

HAN ET AL.

Examiner

Kevin Y. Kim

Art Unit

2638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2-7,9-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1 have been considered but are moot in view of the new ground(s) of rejection.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Guey et al (US 6, 876,645).

Guey et al discloses an apparatus, see Fig. 4, comprising;

an internal oscillating unit (not illustrated) for generating an internal multicarrier $(e^{-j2\pi(f_0+f_1)t}, e^{-j2\pi(f_0+f_2)t}, e^{-j2\pi(f_0+f_3)t})$,

a plurality of frequency transition units (40-1, 40-2, 40-3) for respectively down converting the internal multicarrier and moving it to frequency of "0" as a frequency center (in other words, the internal multicarrier is downconverted to baseband), and

a plurality of filtering units (42-1, 42-2, 42-3) for individually filtering a respective carrier through a low frequency pass band and for providing the respective carrier as an input to a rake receiver (46-1, 46-2, 46-3), wherein

the apparatus operates to separate carriers of a multicarrier wireless communication system and operates to separate carriers from a received external multicarrier signal. See col. 7, lines 57- 67.

Art Unit: 2638

4. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guey et al, as applied to claim 1 above.

Guey et al discloses all the subject matter claimed except for the number of “frequency transition units,” i.e., the frequency downconverters (102A, 102B, 102C). Guey et al shows three units because the number of carriers in the transmitted multi-carrier is three. In other words, that the number of the frequency downconverters depends on the number of carriers used in the transmission and the number of carriers to use is an obvious matter of design choice. Thus, it would have been obvious to one of ordinary skill at the time the invention was made to use six frequency downconverters for demodulation of a multicarrer signal having six carriers. In addition, the power, i.e., “electricity” as applicant terms, of each frequency is the same. See col. 6, lines 11-12.

5. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Guey et al. in view of Maddiotto et al (US 6,690,735 cited previously)

Guey et al discloses a method, comprising;

Separating carriers of a multicarrier receiver system in a receiver of a wireless communication 3X (see col. 1, lines 32-36) by;

using the existing 1X method for one carrier (f_1),

performing a down-conversion once more when the one carrier neighboring two carriers (f_2 , f_3) are separated, to move the one carrier value to a center and to perform a separation (see col. 7, lines 57- 67), in order to separate the carriers in the 3X receiver (see the filters 42-1, 42-2,42-3) and gain information (see “To Decoder”) from the carriers.

Guey et al is silent on whether the separation is executed after a quantization. Maddiotto et al discloses digital down converters (DDC) for digitally separating a multicarrier into its component sub-carriers after quantization, see Fig. 10, because it is known in the art that digital down converters offer greater flexibility and higher performance at least in terms of attenuation and selectivity.

Thus, it would have been obvious to one of ordinary skill at the time the invention was made to quantize the received multicarrier signal in the wireless receiver system of Guey et al for the purpose of using the more flexible and higher performing digital down-converter for frequency down conversion.

Allowable Subject Matter

6. Claims 2-7, 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

Art Unit: 2638

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KEVIN KIM
PATENT EXAMINER